Agency for Healthcare Research and Quality
Advancing Excellence in Health Care

NATIONAL GUIDELINE CLEARINGHOUSE

General

Guideline Title

Management of sickle cell disease in pregnancy

Bibliographic Source(s)

Royal College of Obstetricians and Gynaecologists (RCOG). Management of sickle cell disease in pregnancy. London (UK): Royal College of Obstetricians and Gynaecologists (RCOG); 2011 Jul. 20 p. (Green-top guideline; no. 61). [80 references]

Guideline Status

This is the current release of the guideline.

Regulatory Alert

FDA Warning/Regulatory Alert

Note from the National Guideline Clearinghouse: This guideline references a drug(s) for which important revised regulatory and/or warning information has been released.

- March 22, 2016 – Opioid pain medicines : The U.S. Food and Drug Administration (FDA) is warning about several safety issues with the entire class of opioid pain medicines. These safety risks are potentially harmful interactions with numerous other medications, problems with the adrenal glands, and decreased sex hormone levels. They are requiring changes to the labels of all opioid drugs to warn about these risks.

Recommendations

Major Recommendations

In addition to these evidence-based recommendations, the guideline development group also identifies points of best clinical practice in the original guideline document.

Classification of evidence levels (1++ to 4) and grades of recommendations (A-D) are defined at the end of the "Major Recommendations" field.

Preconception Care

What Is the Importance of Planning Pregnancy and How Can Outcomes for the Woman and Baby Be Improved?

D - From adolescence, the intentions of women with sickle cell disease (SCD) regarding pregnancy and contraception should be documented at each contact with their sickle care team.

D - Women with SCD should be seen preconceptually by a sickle specialist to receive information about how SCD affects pregnancy and how pregnancy affects sickle cell disease, and how to improve outcomes for mother and baby. This consultation should include optimisation of management and screening for end organ damage.

The assessment for chronic disease complications should include:

- Screening for pulmonary hypertension with echocardiography. The incidence of pulmonary hypertension is increased in patients with SCD and is associated with increased mortality. A tricuspid regurgitant jet velocity of more than 2.5 m/second is associated with a high risk of pulmonary hypertension. Screening should be performed if this has not been carried out in the last year.
- Blood pressure and urinalysis should be performed to identify women with hypertension and/or proteinuria. Renal and liver function tests should be performed annually to identify sickle nephropathy and/or deranged hepatic function.
- Retinal screening. Proliferative retinopathy is common in patients with SCD, especially patients with sickle-haemoglobin C disease (HbSC), and can lead to loss of vision. There is no randomised evidence on whether routine screening should be performed or if patients should be screened only if they experience visual symptoms, but we recommend that women are screened preconceptually.
- Screening for iron overload. In women who have been multiply transfused in the past or who have a high ferritin level, T2* cardiac magnetic resonance imaging may be helpful to assess body iron loading. Aggressive iron chelation before conception is advisable in women who are significantly iron loaded.
- Screening for red cell antibodies. Red cell antibodies may indicate an increased risk of haemolytic disease of the newborn. [Evidence level 4]

What Is the Importance of Genetic Screening and What Procedure(s) Are Involved?

D - Women and men with SCD should be encouraged to have the haemoglobinopathy status of their partner determined before they embark on pregnancy. If identified as an 'at risk couple', as per National Screening Committee guidance, they should receive counselling and advice about reproductive options.

What Is the Importance of Antibiotic Prophylaxis and Immunisation?

D - Penicillin prophylaxis or the equivalent should be prescribed.

D - Vaccination status should be determined and updated before pregnancy.

People who are allergic to penicillin should be recommended erythromycin.

Women should be given *Haemophilus influenza* type b and the conjugated meningococcal C vaccine as a single dose if they have not received it as part of primary vaccination. The pneumococcal vaccine (Pneumovax®, Sanofi Pasteur MSD Limited, Maidenhead, UK) should be given every 5 years. [Evidence level 1]

Hepatitis B vaccination is recommended and the woman's immune status should be determined preconceptually. Women with SCD should be advised to receive the influenza and 'swine flu' vaccine annually. Penicillin prophylaxis and vaccinations are usually monitored and administered in primary care, but should be reviewed by the specialist haematologist/obstetrician during pregnancy. [Evidence level 4]

What Vitamin Supplements Should Be Given?

D - Folic acid (5 mg) should be given once daily both preconceptually and throughout pregnancy.

What Medications Should Be Reviewed Preconceptually?

D - Hydroxycarbamide (hydroxyurea) should be stopped at least 3 months before conception.

D - Angiotensin-converting enzyme inhibitors and angiotensin receptor blockers should be stopped before conception.

Antenatal Care

General Aspects

D - Antenatal care should be provided by a multidisciplinary team including an obstetrician and midwife with experience of high-risk antenatal care and a haematologist with an interest in SCD.

D - Women with SCD should undergo medical review by the haematologist and be screened for end organ damage (if this has not been undertaken preconceptually).

D - Women with SCD should aim to avoid precipitating factors of sickle cell crises such as exposure to extreme temperatures, dehydration and overexertion.

D - Persistent vomiting can lead to dehydration and sickle cell crisis and women should be advised to seek medical advice early.

D - The influenza vaccine should be recommended if it has not been administered in the previous year.

Antenatal Haemoglobinopathy Screening

D - If the woman has not been seen preconceptually, she should be offered partner testing. If the partner is a carrier, appropriate counselling should be offered as early as possible in pregnancy – ideally by 10 weeks of gestation – to allow the option of first-trimester diagnosis and termination if that is the woman's choice.

What Medication Should Be Given During Pregnancy?

D - If women have not undergone a preconceptual review, they should be advised to take daily folic acid and prophylactic antibiotics (if not contraindicated). Drugs that are unsafe in pregnancy should be stopped immediately.

D - Iron supplementation should be given only if there is laboratory evidence of iron deficiency.

D - Women with SCD should be considered for low-dose aspirin 75 mg once daily from 12 weeks of gestation in an effort to reduce the risk of developing pre-eclampsia.

D - Women with SCD should be advised to receive prophylactic low-molecular-weight heparin during antenatal hospital admissions.

Non-steroidal anti-inflammatory drugs (NSAIDs) should be prescribed only between 12 and 28 weeks of gestation owing to concerns regarding adverse effects on fetal development.

What Additional Care Should Be Provided During the Antenatal Appointment?

D - Antenatal appointments for women with SCD should provide routine antenatal care as well as care specifically for women with SCD.

C - Blood pressure and urinalysis should be performed at each consultation, and midstream urine for culture performed monthly.

At each appointment, opportunities should be offered for information and education. The woman's housing and work circumstances should be reviewed, and interventions which may reduce the potential provocation of acute crises (e.g., improved heating, allowance for increased hospital visits) should be encouraged. Table 2 in the original guideline document outlines the recommended frequency and content of antenatal appointments for women with SCD.

What Is the Role of Blood Transfusion During Pregnancy?

A - Routine prophylactic transfusion is not recommended during pregnancy for women with SCD.

D - If acute exchange transfusion is required for the treatment of a sickle complication, it may be appropriate to continue the transfusion regimen for the remainder of the pregnancy.

A - Blood should be matched for an extended phenotype including full rhesus typing (C, D and E) as well as Kell typing.

The decision to recommend transfusion should be made by an experienced haematologist and obstetrician. Indications for transfusion are summarised in Table 3 of the original guideline document.

What Is the Optimal Management of Acute Painful Crisis During Pregnancy?

D - Women with SCD who become unwell should have sickle cell crisis excluded as a matter of urgency.

D - Pregnant women presenting with acute painful crisis should be rapidly assessed by the multidisciplinary team and appropriate analgesia should be administered. Pethidine should not be used because of the associated risk of seizures.

D - Women admitted with sickle cell crisis should be looked after by the multidisciplinary team, involving obstetricians, midwives, haematologists and anaesthetists.

D - The requirement for fluids and oxygen should be assessed, and fluids and oxygen administered if required.

D - Thromboprophylaxis should be given to women admitted to hospital with acute painful crisis.

What Are the Other Acute Complications of SCD and How Are They Treated?

D - All patients, carers, medical and nursing staff should be aware of the other acute complications of SCD, including acute chest syndrome (ACS), acute stroke and acute anaemia.

D - Each hospital should have a protocol in place for the management of ACS in pregnancy, including the use of transfusion therapy.

Intrapartum Care

What Is the Optimal Timing and Mode of Delivery?

D - Pregnant women with SCD who have a normally growing fetus should be offered elective birth through induction of labour, or by elective caesarean section if indicated, after 38^{+0} weeks of gestation.

D - SCD should not in itself be considered a contraindication to attempting vaginal delivery or vaginal birth after caesarean section.

D - Blood should be cross-matched for delivery if there are atypical antibodies present (since this may delay the availability of blood), otherwise a 'group and save' will suffice.

What Is the Optimum Care and Place of Birth for a Woman with SCD?

D - Women with SCD should be advised to give birth in hospitals that are able to manage both the complications of SCD and high-risk pregnancies.

D - The relevant multidisciplinary team (senior midwife in charge, senior obstetrician, anaesthetist and haematologist) should be informed as soon as labour is confirmed.

D - Women should be kept warm and given adequate fluid during labour.

D - Continuous intrapartum electronic fetal heart rate monitoring is recommended owing to the increased risk of fetal distress which may necessitate operative delivery.

During labour, if oral hydration is not tolerated or is inadequate, intravenous fluids should be administered using a fluid balance chart to prevent fluid overload. Venous access can be difficult, especially if they have had multiple previous admissions, and as such anaesthetic review/intravenous access should be obtained early. The demand for oxygen is increased during the intrapartum period and the use of pulse oximetry to detect hypoxia in the mother is appropriate during labour. Arterial blood gas analysis should be performed and oxygen therapy instituted if oxygen saturation is 94% or less. [Evidence level 4]

Routine antibiotic prophylaxis in labour is currently not supported by evidence, but hourly observations of vital signs should be performed. A raised temperature (over 37.5ºC) requires investigation. The clinician should have a low threshold to commence broad-spectrum antibiotics.

What Is the Optimal Mode of Analgesia and Anaesthesia?

D - Women with SCD should be offered anaesthetic assessment in the third trimester of pregnancy.

D - Avoid the use of pethidine, but other opiates can be used.

D - Regional analgesia is recommended for caesarean section.

Postpartum Care

What Should Be the Optimum Care Post-Delivery?

D - In pregnant women where the baby is at high risk of SCD (i.e., the partner is a carrier or affected), early testing for SCD should be offered. Capillary samples should be sent to laboratories where there is experience in the routine analysis of SCD in newborn samples. This will usually be at a regional centre.

D - Maintain maternal oxygen saturation above 94% and adequate hydration based on fluid balance until discharge.

D - Low-molecular-weight heparin should be administered while in hospital and 7 days post-discharge following vaginal delivery or for a period of 6 weeks following caesarean section.

What Postpartum Contraceptive Advice Should Women Be Given?

B - Progestogen-containing contraceptives such as the progesterone only pill (Cerazette®, Organon Laboratories Ltd, Hoddesdon, UK), injectable contraceptives (Depo-Provera®, Pfizer Ltd, New York, USA) and the levonorgestrel intrauterine system (Mirena®, Bayer Schering Pharma AG, Berlin, Germany) are safe and effective in SCD.

D - Estrogen-containing contraceptives should be used as second-line agents.

Definitions:

Grades of Recommendations

A - At least one meta-analysis, systematic review or randomised controlled trial rated as 1++ and directly applicable to the target population; *or*

A systematic review of randomised controlled trials or a body of evidence consisting principally of studies rated as 1+ directly applicable to the target population and demonstrating overall consistency of results

B - A body of evidence including studies rated as 2++ directly applicable to the target population, and demonstrating overall consistency of results; *or*

Extrapolated evidence from studies rated as 1++ or 1+

C - A body of evidence including studies rated as 2+ directly applicable to the target population and demonstrating overall consistency of results; *or*

Extrapolated evidence from studies rated as 2++

D - Evidence level 3 or 4; *or*

Extrapolated evidence from studies rated as 2+

Good Practice Point - Recommended best practice based on the clinical experience of the guideline development group

Classification of Evidence Levels

1++ High-quality meta-analyses, systematic reviews of randomised controlled trials or randomised controlled trials with a very low risk of bias

1+ Well-conducted meta-analyses, systematic reviews of randomised controlled trials or randomised controlled trials with a low risk of bias

1– Meta-analyses, systematic reviews of randomised controlled trials or randomised controlled trials with a high risk of bias

2++ High-quality systematic reviews of case–control or cohort studies or high-quality case–control or cohort studies with a very low risk of confounding, bias or chance and a high probability that the relationship is causal

2+ Well-conducted case–control or cohort studies with a low risk of confounding, bias or chance and a moderate probability that the relationship is causal

2– Case–control or cohort studies with a high risk of confounding, bias or chance and a significant risk that the relationship is not causal

3 Non-analytical studies, e.g., case reports, case series

4 Expert opinion

Clinical Algorithm(s)

None provided

Scope

Disease/Condition(s)

Sickle cell disease (SCD) in pregnancy

Guideline Category

Counseling

Evaluation

Management

Screening

Treatment

Clinical Specialty

Anesthesiology

Family Practice

Hematology

Internal Medicine

Medical Genetics

Nursing

Obstetrics and Gynecology

Pediatrics

Intended Users

Advanced Practice Nurses

Physician Assistants

Physicians

Guideline Objective(s)

To describe the management of pregnant women with sickle cell disease (SCD), including preconceptual screening and antenatal, intrapartum and postnatal management

Target Population

Pregnant women and women of childbearing age with sickle cell disease (SCD)

Note: The guideline does not cover the management of women with sickle cell trait.

Interventions and Practices Considered

1. Preconceptual counselling

2. Preconceptual screening and assessment for chronic disease complications (e.g., pulmonary hypertension, nephropathy, retinopathy, iron overload, red cell antibodies)
3. Genetic screening of partners of women with sickle cell disease for haemoglobinopathies
4. Penicillin prophylaxis and vaccination update
5. Folic acid supplementation (preconceptual and during pregnancy)
6. Preconceptual review and stopping of medications known to be unsafe in pregnancy
7. Antenatal care provided by a multidisciplinary team, including medical review by a haematologist
8. Screening for end-organ damage
9. Avoidance of precipitating factors of sickle cell disease
10. Iron supplementation during pregnancy (if evidence of iron deficiency)
11. Low-dose aspirin prophylaxis during pregnancy
12. Low-molecular-weight heparin prophylaxis
13. Routine antenatal care including blood pressure monitoring and urinalysis
14. Routine blood transfusions during pregnancy (not recommended)
15. Exchange transfusion for sickle cell crisis
16. Blood matching for extended phenotype including full rhesus typing (C, D and E) and Kell typing
17. Urgent and appropriate management of sickle cell crises and complications during pregnancy
18. Choice of optimal timing and mode of delivery
19. Delivery in hospital with continuous intrapartum electronic fetal heart rate monitoring
20. Anaesthetic management during pregnancy (regional anaesthesia during caesarean section)
21. Postpartum care
22. Testing at-risk newborns for sickle cell disease

Major Outcomes Considered

- Risk for and incidence of maternal and fetal complications
- Perinatal morbidity and mortality
- Organ damage

Methodology

Methods Used to Collect/Select the Evidence

Searches of Electronic Databases

Description of Methods Used to Collect/Select the Evidence

This Royal College of Obstetricians and Gynaecologists (RCOG) guideline was developed in accordance with standard methodology for producing RCOG Green-top guidelines (see the "Availability of Companion Documents" field). Medline, EMBASE, the Cochrane Database of Systematic Reviews, the Cochrane Control Register of Controlled Trials (CONTROL), the Database of Abstracts of Reviews and Effects (DARE), the ACP Journal Club and the Ovid database were searched for relevant randomised controlled trials, systematic reviews and meta-analyses between 1980 and August 2009. Search terms included: 'sickle cell', 'hydroxycarbamide', 'antenatal', 'pregnancy', 'intrapartum', 'penicillin prophylaxis', 'ACE inhibitor', 'transfusion', 'ultrasound', 'Doppler', 'echocardiogram', 'anticoagulation', 'prophylaxis', 'sickle cell and risk factors', 'preconceptual' and 'sickle cell crisis' and included all relevant MeSH terms and subheadings. The search was limited to humans and the English language. The National Library for Health and the National Guideline Clearinghouse were also searched for relevant guidelines.

Number of Source Documents

Not stated

Methods Used to Assess the Quality and Strength of the Evidence

Weighting According to a Rating Scheme (Scheme Given)

Rating Scheme for the Strength of the Evidence

Classification of Evidence Levels

1++ High-quality meta-analyses, systematic reviews of randomised controlled trials or randomised controlled trials with a very low risk of bias

1+ Well-conducted meta-analyses, systematic reviews of randomised controlled trials or randomised controlled trials with a low risk of bias

1– Meta-analyses, systematic reviews of randomised controlled trials or randomised controlled trials with a high risk of bias

2++ High-quality systematic reviews of case–control or cohort studies or high quality case–control or cohort studies with a very low risk of confounding, bias or chance and a high probability that the relationship is causal

2+ Well-conducted case–control or cohort studies with a low risk of confounding, bias or chance and a moderate probability that the relationship is causal

2– Case–control or cohort studies with a high risk of confounding, bias or chance and a significant risk that the relationship is not causal

3 Non-analytical studies, e.g., case reports, case series

4 Expert opinion

Methods Used to Analyze the Evidence

Systematic Review

Description of the Methods Used to Analyze the Evidence

Reviewing and Grading of Evidence

Once the evidence has been collated for each clinical question it needs to be appraised and reviewed (refer to section 3 in "Development of RCOG Green-top guidelines: producing a clinical practice guideline" for information on the formulation of the clinical questions; see the "Availability of Companion Documents" field). For each question, the study type with least chance of bias should be used. If available, randomised controlled trials (RCTs) of suitable size and quality should be used in preference to observational data. This may vary depending on the outcome being examined.

The level of evidence and the grade of the recommendations used in this guideline originate from the guidance by the Scottish Intercollegiate Guidelines Network (SIGN) Grading Review Group, which incorporates formal assessment of the methodological quality, quantity, consistency, and applicability of the evidence base. The methods used to appraise individual study types are available from the SIGN Web site (www.sign.ac.uk/methodology/checklists.html). An objective appraisal of study quality is essential, but paired reviewing by guideline leads may be impractical because of resource constraints.

Once evidence has been collated and appraised, it can be graded. A judgement on the quality of the evidence will be necessary using the grading system (see the "Rating Scheme for the Strength of the Evidence" field). Where evidence is felt to warrant 'down-grading', for whatever reason, the rationale must be stated. Evidence judged to be of poor quality can be excluded. Any study with a high chance of bias (either 1– or 2–) will be excluded from the guideline and recommendations will not be based on this evidence. This prevents recommendations being based on poor-quality RCTs when higher-quality observational evidence is available.

Methods Used to Formulate the Recommendations

Expert Consensus

Informal Consensus

Description of Methods Used to Formulate the Recommendations

Guideline Development

The development of guidelines involves more than the collation and reviewing of evidence. Even with high-quality data from systematic reviews of randomised controlled trials, a value judgement is needed when comparing one therapy with another. This will therefore introduce the need for consensus.

Royal College of Obstetricians and Gynaecologists (RCOG) Green-top guidelines are drafted by nominated developers, in contrast to other guideline groups such as the National Institute for Health and Clinical Excellence (NICE) and the Scottish Intercollegiate Guidelines Network (SIGN), who use larger guideline development groups. Equally, in contrast to other guideline groups, the topics chosen for development as Green-top guidelines are concise enough to allow development by a smaller group of individuals.

In agreeing the precise wording of evidence-based guideline recommendations and in developing consensus-based 'good practice points', the Guidelines Committee (GC) will employ an informal consensus approach through group discussion. In line with current methodologies, the entire development process will follow strict guidance and be both transparent and robust. The RCOG acknowledges that formal consensus methods have been described, but these require further evaluation in the context of clinical guideline development. It is envisaged that this will not detract from the rigor of the process but prevent undue delays in development.

Rating Scheme for the Strength of the Recommendations

Grades of Recommendations

A - At least one meta-analysis, systematic review or randomised controlled trial rated as 1++ and directly applicable to the target population; *or*

A systematic review of randomised controlled trials or a body of evidence consisting principally of studies rated as 1+ directly applicable to the target population and demonstrating overall consistency of results

B - A body of evidence including studies rated as 2++ directly applicable to the target population, and demonstrating overall consistency of results; *or*

Extrapolated evidence from studies rated as 1++ or 1+

C - A body of evidence including studies rated as 2+ directly applicable to the target population and demonstrating overall consistency of results; *or*

Extrapolated evidence from studies rated as 2++

D - Evidence level 3 or 4; *or*

Extrapolated evidence from studies rated as 2+

Good Practice Point - Recommended best practice based on the clinical experience of the guideline development group

Cost Analysis

A formal cost analysis was not performed and published cost analyses were not reviewed.

Method of Guideline Validation

External Peer Review

Internal Peer Review

Description of Method of Guideline Validation

Following discussion in the Guidelines Committee (GC), each Green-top guideline is formally peer reviewed. At the same time, the draft guideline is published on the Royal College of Obstetricians and Gynaecologists (RCOG) Web site for further peer discussion before final publication.

All comments will be collated by the RCOG and tabulated for consideration by the guideline leads. Each comment will require discussion. Where comments are rejected then justification will need to be made. Following this review, the document will be updated and the GC will then review the revised draft and the table of comments.

Once the GC signs-off on the guideline, it is submitted to the Standards Board for approval before final publication.

Evidence Supporting the Recommendations

Type of Evidence Supporting the Recommendations

The type of supporting evidence is identified and graded for most recommendations (see the "Major Recommendations" field).

Where possible, recommendations are based on available evidence; areas where evidence is lacking are annotated as good practice points (designated by a tick) in the original guideline document.

Benefits/Harms of Implementing the Guideline Recommendations

Potential Benefits

Appropriate management of pregnant women with sickle cell disease

Potential Harms

- Non-steroidal anti-inflammatory drugs (NSAIDs) should be prescribed only between 12 and 28 weeks of gestation owing to concerns regarding adverse effects on fetal development.
- Adjuvants may be required to treat the adverse effects of opiates, such as antihistamines to treat itching or laxatives to prevent opiate-induced constipation, and antiemetics may be required.
- Opiates are not associated with teratogenicity or congenital malformation but may be associated with transient suppression of fetal movement and a reduced baseline variability of the fetal heart rate. Where a mother has received prolonged administration of opiates in late pregnancy, the neonate should be observed for signs of opioid withdrawal.

Contraindications

Contraindications

- Pethidine should be avoided because of the risk of seizures when administered to a woman with sickle cell disease.
- Hydroxycarbamide is teratogenic in animals and, consequently, current UK advice is that women with sickle cell disease on hydroxycarbamide should use effective contraception and stop taking hydroxycarbamide 3 months before they conceive.
- Angiotensin-converting enzyme inhibitors or angiotensin receptor blockers are not safe in pregnancy and should be stopped in women who are trying to conceive.

Qualifying Statements

Qualifying Statements

- These recommendations are not intended to dictate an exclusive course of management or treatment. They must be evaluated with reference to individual patient needs, resources and limitations unique to the institution and variations in local populations. It is hoped that this process of local ownership will help to incorporate these guidelines into routine practice. Attention is drawn to areas of clinical uncertainty where further research might be indicated.
- The Royal College of Obstetricians and Gynaecologists (RCOG) produces guidelines as an educational aid to good clinical practice. They present recognised methods and techniques of clinical practice, based on published evidence, for consideration by obstetricians and gynaecologists and other relevant health professionals. The ultimate judgement regarding a particular clinical procedure or treatment plan must be made by the doctor or other attendant in the light of clinical data presented by the patient and the diagnostic and treatment options available within the appropriate health services. This means that RCOG Guidelines are unlike protocols or guidelines issued by employers, as they are not intended to be prescriptive directions defining a single course of management. Departure from the local prescriptive protocols or guidelines should be fully documented in the patient's case notes at the time the relevant decision is taken.

Implementation of the Guideline

Description of Implementation Strategy

An implementation strategy was not provided.

Implementation Tools

Audit Criteria/Indicators

For information about availability, see the *Availability of Companion Documents* and *Patient Resources* fields below.

Institute of Medicine (IOM) National Healthcare Quality Report Categories

IOM Care Need

Living with Illness

Staying Healthy

IOM Domain

Effectiveness

Patient-centeredness

Identifying Information and Availability

Bibliographic Source(s)

Royal College of Obstetricians and Gynaecologists (RCOG). Management of sickle cell disease in pregnancy. London (UK): Royal College of Obstetricians and Gynaecologists (RCOG); 2011 Jul. 20 p. (Green-top guideline; no. 61). [80 references]

Adaptation

Not applicable: The guideline was not adapted from another source.

Date Released

2011 Jul

Guideline Developer(s)

Royal College of Obstetricians and Gynaecologists - Medical Specialty Society

Source(s) of Funding

Royal College of Obstetricians and Gynaecologists

Guideline Committee

Guidelines Committee

Composition of Group That Authored the Guideline

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Guideline Committee Lead Reviewers: Dr J Shillito MRCOG, Leeds; Dr SK Surendran FRCOG, London

Financial Disclosures/Conflicts of Interest

Conflicts of interest: none declared

Guideline Status

This is the current release of the guideline.

Guideline Availability

Electronic copies: Available from the Royal College of Obstetricians and Gynaecologists (RCOG) Web site .

Availability of Companion Documents

The following are available:

- Development of RCOG Green-top guidelines: policies and processes. Clinical Governance Advice No 1a. London (UK): Royal College of Obstetricians and Gynaecologists (RCOG); 2006 Nov. 6 p. Electronic copies: Available from the Royal College of Obstetricians and Gynaecologists (RCOG) Web site .
- Development of RCOG Green-top guidelines: producing a scope. Clinical Governance Advice No 1b. London (UK): Royal College of Obstetricians and Gynaecologists (RCOG); 2006 Nov. 4 p. Electronic copies: Available from the RCOG Web site .
- Development of RCOG Green-top guidelines: producing a clinical practice guideline. Clinical Governance Advice No 1c. London (UK): Royal College of Obstetricians and Gynaecologists (RCOG); 2006 Nov. 13 p. Electronic copies: Available from the RCOG Web site .
- Development of RCOG Green-top guidelines: consensus methods for adaptation of Green-top guidelines. Clinical Governance Advice No 1d. London (UK): Royal College of Obstetricians and Gynaecologists (RCOG); 2010 Feb. 9 p. Electronic copies: Available from the RCOG Web site .

In addition, suggested audit topics can be found in section 9 of the original guideline document .

Patient Resources

None available

NGC Status

This NGC summary was completed by ECRI Institute on January 26, 2012. This summary was updated by ECRI Institute on March 10, 2014 following the U.S. Food and Drug Administration advisory on Low Molecular Weight Heparins. This summary was updated by ECRI Institute on September 18, 2015 following the U.S. Food and Drug Administration advisory on non-aspirin nonsteroidal anti-inflammatory drugs (NSAIDs). This summary was updated by ECRI Institute on June 2, 2016 following the U.S. Food and Drug Administration advisory on Opioid pain medicines.

Copyright Statement

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